Asset Management at Union Pacific

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BUILDING AMERICA™ | UNION PACIFIC

Union Pacific is a Railroad

- Freight Railroad

- Private Sector

- For Profit

- Publicly Traded (NYSE: UNP)

- 140 Years in the Same Business Under the Same Name
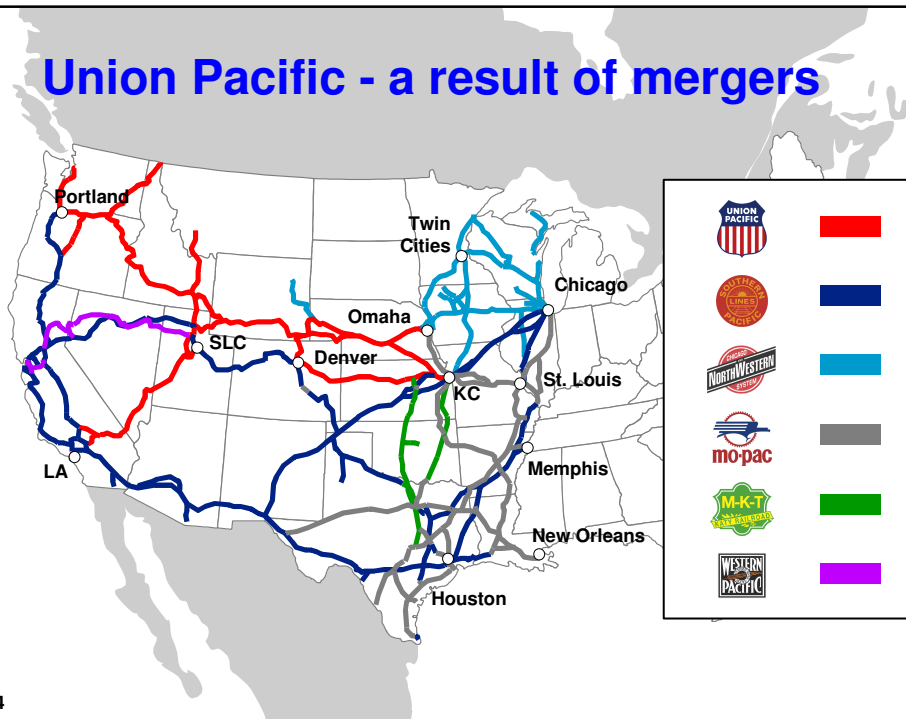
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Union Pacific is a Railroad

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- 33,000+ Route Miles
- Western 2/3 of USA
- Links Canada, Mexico
- Diversified Traffic
- 550 Mil Tons Carried
- 1 Tril Gross Ton Miles
- Revenue = $11.7 Bil
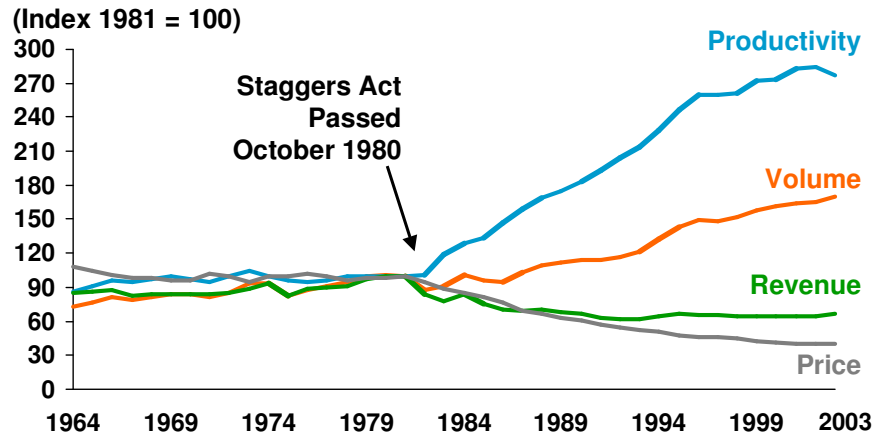- Capital exp. = $2.1 B

- **Largest Railroad in North America!**

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Union Pacific - a result of mergers

4

U.S. Railroad Performance 1964-2003

Deregulated Environment Has Enabled Productivity & Volume Gains

(Index 1981 = 100)

Productivity

Volume

Revenue

Price

Staggers Act
Passed
October 1980

300							
270							
240							
210							
180							
150							
120							
90							
60							
30							
0							

1964   1969   1974   1979   1984   1989   1994   1999   2003

Source: AAR

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5 Critical Resources

| Resources:		Book Value	Annual OE/Cap
• Human	50,000 employees		$4 bil
• Locomotives	6,700 units		
• Freight Cars	155,000 owned	$7 bil	$1.7 bil
	160,000 foreign/private		
• Line	33,000+ miles	$20 bil	$1.5 bil
• Terminal	105 major yards		

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Management Challenge

Characteristics:
- **Service Intensive**
  - **Freight Transportation**
  - **Competitive Alternatives**
- **People Intensive**
- **Geographically Dispersed**

- **Asset Intensive**
  - **Fixed Facilities**
  - **Mobile Assets**
  - **High Productivity Leverage**

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Network Resources Impact Cycle

Workforce

Main Lines

Terminals

Locomotives

Freight Cars

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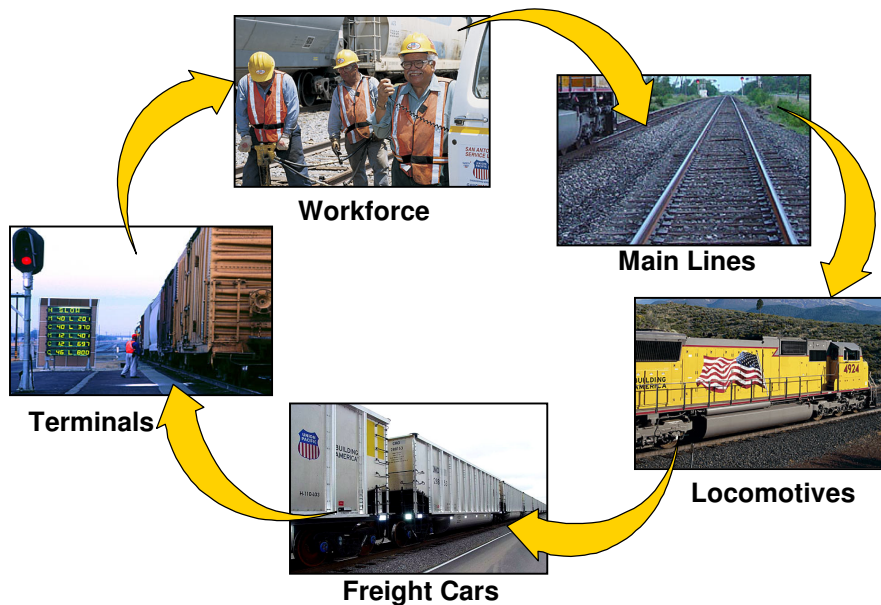
Characteristics of a Network

	UP
• **Multiple Nodes and Links**	**++**
• **Alternate Paths**	**+**
• **Complex Operating Options**	**+**
• **Shared Resources**	**++**
• **Connectivity and Interaction**	**++**

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Service Units

Union Pacific Railroad
4 Regions
Service Units (19)

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Network Planning
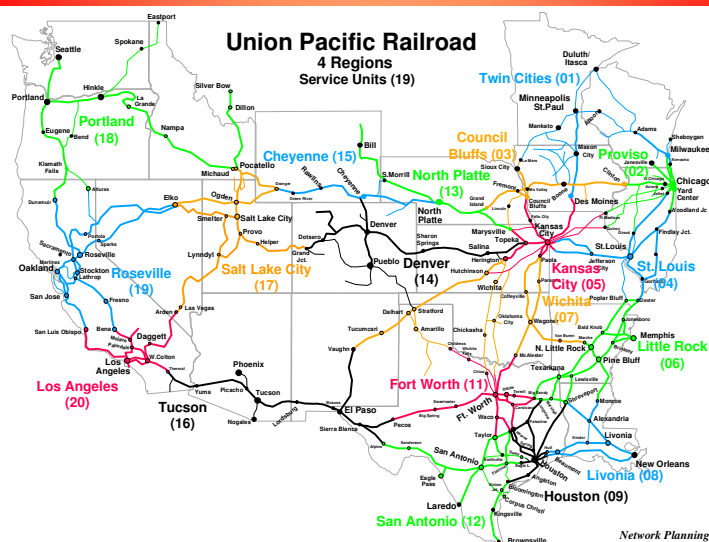
Operating Management System

- **Objectives & Structure**
  - Safety
  - Service
  - Value
  - Leadership
- **Alignment**
  - Applied from Chief Operating Officer to 1st-Line Supervisors
  - Performance Outcome Matched with Span of Control
- **Accountability**
  - Basis for Job Agreement (bi-annual review)
  - Drives 25-75% of Compensation, plus Long-Term Employment
- **Measurement & Review**
  - Comprehensive Measurement System
  - Daily-Weekly-Monthly Review
  - Published Performance Ranking Across the Network

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Objectives & Structure

- **Safety**   **System-Level Outcome**
  - Employee   Injuries per 200,000 Man-Hours
  - Customer   Crossing Incidents per Million Train-Miles
  - Public   Derailment Incidents per Billion Ton-Miles
- **Service**
  - Premium   Intermodal Box Availability vs Commitment
  - Bulk   Train Cycle Time vs Contract
  - Manifest   Individual Car Delivery vs Original Schedule
- **Value**
  - Workforce   Budget and Re-Crew Rate
  - Locomotive   Ton-Miles per Unit and per Horsepower
  - Freight Car   Cycle time and Loads per Month
  - Line Capacity   Velocity and Ton-Miles per Mile of Road
  - Terminal Capacity Car Dwell and Thruput
- **Leadership**
  - Communication   Plan Deployment and Coverage
  - Training   Testing and Deployment
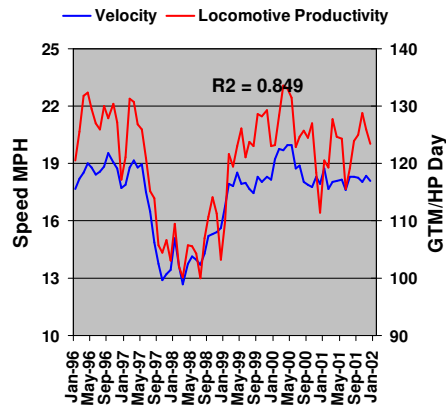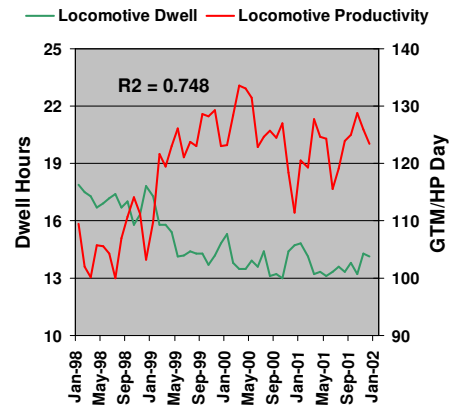
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Alignment of Measures

Velocity vs. Locomotive Productivity — R2 = 0.849

Loco Dwell vs. Loco Productivity — R2 = 0.748

Cascade Asset Measurement

- **Locomotives**

Level	Key Outcome Indicators		
System	Gross Ton-Miles per Horsepower		
Market/Network	Mix		Repositioning
Mechanical			Availability
Region	Velocity	HP per Ton	Dwell
Service Unit	Velocity	HP per Ton	Dwell
Corridor	Velocity	HP per Ton	
Terminal		HP per Ton	Dwell
Shop			Dwell

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Measurement & Review

6 Key Questions - SDI - Business Plan
Linkages

Revenue
Price, Growth = Yield Strategy

Customer Satisfaction
CSI (Cust Satisfaction Index)

R-Square = .83

Operating Service Performance
SDI (Service Delivery Index)

R-Square = 0..84-0.92

Six Key Questions
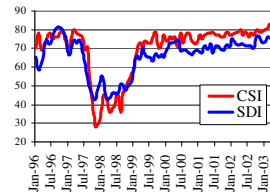Key Measures Driving Service Performance
& Resource Productivity

Region

Service Unit

Terminal   **Corridor**

Chart legend: CSI, SDI (values 20–90, Jan-96 to Jan-03)

1. Do We Have a Safety Plan?

2. Did We Run the Train in the T-Plan?

3. Did We Run the Train On-Time?

4. Did the Train Have the Right Cars On It?

5. Did We Use the Resources Efficiently?

6. Did We Do It Safely?

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Management System

Five Critical Resources

- Employees
- Locomotives
- Freight Cars
- Main Line Capacity
- Terminal Capacity

Three Service Networks

Intermodal | Bulk | Manifest

- Employees
- Locomotives
- Freight Cars
- Main Line Capacity
- Terminal Capacity

Four Operating Regions

Intermodal | Bulk | Manifest
West | Central | South | North

- Employees
- Locomotives
- Freight Cars
- Main Line Capacity
- Terminal Capacity

Six Key Questions & Joint Goals

Network Mgmt.

6 Key Questions & Joint Goals

Intermodal | Bulk | Manifest
West | Central | South | North

- Employees
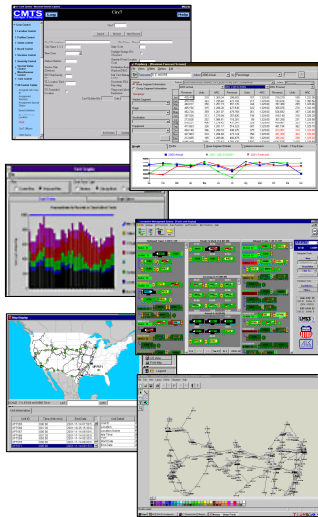- Locomotives
- Freight Cars
- Main Line Capacity
- Terminal Capacity

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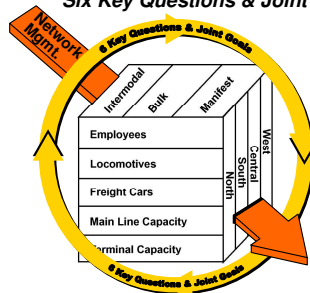
Network Management

Strategic
- Supply/Demand Forecasting
- Transportation & Resource Planning
- Information Systems / Technology

Tactical
- Network Surveillance
- Flow Control
- Locomotive & Crew Management
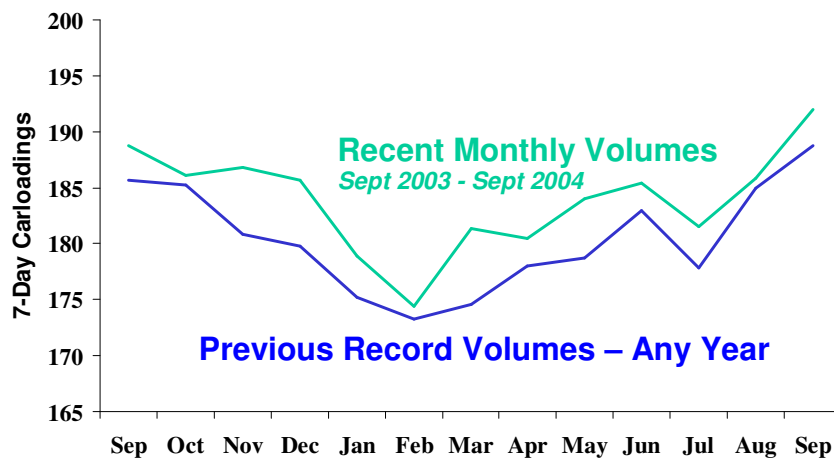- Interline & Industry Management

Real Time
- Train Dispatching
- Tracking and Event Reporting
- Locomotive On-Board Systems

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Unprecedented Demand

Recent Monthly Volumes
Sept 2003 - Sept 2004

Previous Record Volumes – Any Year

7-Day Carloadings

200
195
190
185
180
175
170
165

Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep

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Union Pacific